

CLAIMS

What is claimed is:

1. A stylet for use with a medical stimulating lead, the stylet comprising:
an outer covering, made of outer covering material; and
an inner core, made of inner core material, the inner core inside the outer covering,
wherein the outer covering material and inner core material have different elastic and buckling properties.
2. The stylet of claim 1, wherein the outer covering material is a super-elastic material, which outer covering material is substantially more resistant to permanent bending deformation than the inner core material; and wherein the inner core material is a linear elastic material, which inner core material is substantially more resistant to buckling than the outer covering material.
3. The stylet of claim 2, wherein the inner core material is selected from the group consisting of cold drawn 304 stainless steel, 316 stainless steel, 316L stainless steel; and wherein the outer material is nitinol (425 nickel-titanium alloy).
4. The stylet of claim 3, wherein the outer covering defines a tube and the inner core is a pre-formed rod.
5. The stylet of claim 1, wherein the stylet is isodiametric.

6. The stylet of claim 5, wherein the outer covering has a variable wall thickness along the length of the stylet.

7. The stylet of claim 5, wherein the outer covering has a substantially constant wall thickness along the length of the stylet.

8. The stylet of claim 1, wherein the stylet has a variable outer circumference along the length of said stylet.

9. The stylet of claim 8, wherein the outer covering has a substantially constant wall thickness along the length of the stylet.

10. The stylet of claim 8, wherein the inner core has a substantially constant thickness along the length of the stylet.

11. The stylet of claim 1, wherein the inner core material is a super-elastic material, which inner core material is substantially more resistant to permanent bending deformation than the outer covering material; and wherein the outer covering material is a linear-elastic material, which outer covering material is substantially more resistant to buckling than the inner core material.

12. The stylet of claim 11, wherein the outer covering material is selected from the group consisting of cold drawn 304 stainless steel, 316 stainless steel, 316L stainless steel, and the inner core material is nitinol (425 nickel-titanium alloy).

13. The stylet of claim 1, wherein the outer covering defines a tube and the inner core is a pre-formed rod that has been pre-stressed.

14. A stylet for use with a medical stimulating lead, the stylet comprising:
- an outer covering; and
 - an inner core, made of inner core material, inside the outer covering,
- wherein the outer covering is made of an outer covering material which is substantially more flexible than inner core material; and
- wherein the inner core material is substantially more resistant to buckling than the outer covering material.
15. The stylet of claim 14, wherein the outer covering material is selected from the group consisting of cold drawn 304 stainless steel, 316 stainless steel, 316L stainless steel and nitinol (425 nickel-titanium alloy); and wherein the inner core material is selected from the group consisting of magnesia partially stabilized Zirconia, Ytria stabilized Zirconia, ceramic, epoxy, and hard polyurethane.
16. The stylet of claim 15, wherein the stylet is dimensioned for use in deep brain stimulation (DBS).
17. The stylet of claim 14, wherein the outer covering defines a tube, having a wall cross-section defining an annulus.
18. A stimulating lead system which is insertable into tissue more than once, said system comprising:
- a stimulating lead, said lead having an inner lumen along its axial length; and
 - a stylet, configured and dimensioned to fit inside said lumen,

wherein said stylet comprises:
an outer covering; and
an inner core material inside said outer covering,
wherein the outer covering is made of an outer covering material
which is substantially more flexible than the inner core material; and
wherein the inner core material is substantially more resistant to
buckling than the outer covering material.

19. The lead system of claim 18,
wherein the outer covering material is selected from the group
consisting of cold drawn 304 stainless steel, 316 stainless steel, 316L stainless
steel and nitinol (425 nickel-titanium alloy); and
wherein the inner core material is selected from the group
consisting of magnesia partially stabilized Zirconia, Ytria stabilized Zirconia,
ceramics, epoxy, and hard polyurethane.

20. The lead system of claim 19, wherein the lead system, including
the stylet, is dimensioned for use in DBS application.